

Detroit and St. Clair Rivers Real-Time Monitoring

- **Michigan Water Utility Security Summit**
 - **“Security and Emergency Management”**
 - **June 3, 2009**



Reason for Monitoring

- Over 700 spills have been documented along the St. Clair River System since 1986.
- Two of the most notable spills:
 - 8-14-2003 spill of 134 kg of vinyl chloride.
 - 2-1-2004 (Super Bowl Spill) of 42,000 gallons of methyl ethyl ketone.
- A estimated 4.2 million people on the U.S. side receive there drinking water from the Huron to Erie waterway.

Existing Notification Process

Spill and Emergency Reporting Agencies

- Michigan State Police
- Ontario Spills Action Centre (Toronto)
- Pollution Emergency Alerting System (MDEQ PEAS system)
- MDEQ SE Michigan District Staff
- Drinking Water Treatment Plant Staff

Develop Early Warning Water Quality Monitoring Network

- Identify on-line monitoring equipment
 - GC/MS
 - Fluorometer
 - Total Organic Carbon (TOC) Analyzer
 - Multiparameter probe
- Rapid Toxicity System - Distribution
 - Microtox

Real Time Monitoring St. Clair River and Lake St. Clair

- Includes three grants of \$1.8 million, \$880,000 and \$250,000 (x 3).
- Involves 13 Water Treatment Plant Intakes
- Monitoring framework designed to protect drinking water treatment plants
- Improved spill notification process
- Monitor ambient water quality
- Monroe Intake to be included soon with approval of \$92,000 DHS/UASI

Sarnia-Lambton Environmental Association



Continuous monitoring station at Courtright

YSI Multiparameter Sonde

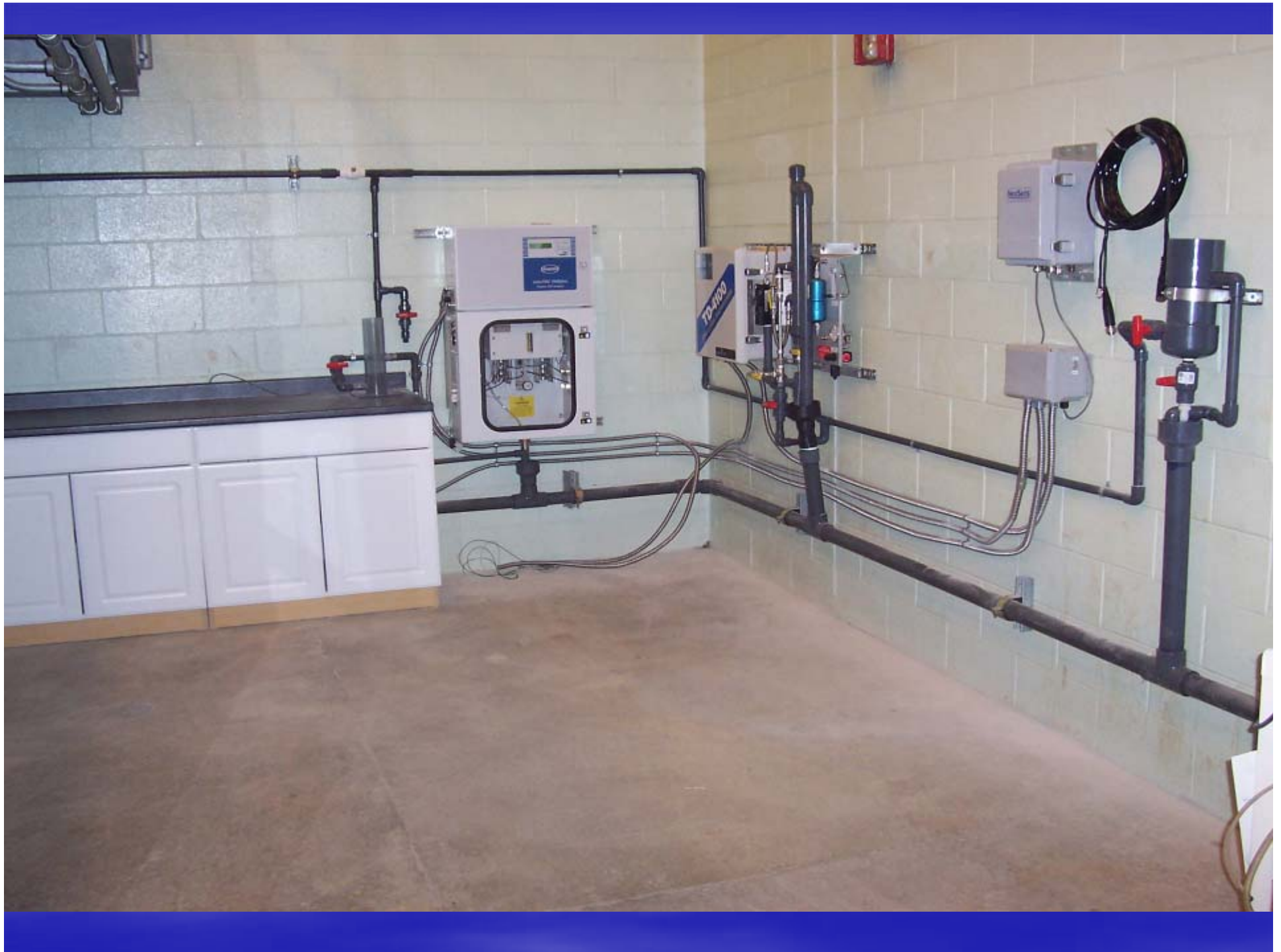
- pH
- Temperature
- Conductivity
- Dissolved Oxygen
- Oxidation/Reduction Potential
- Turbidity
- Chlorophyll a







02/09/2007



*Inficon Gas
Chromatograph/
Mass
Spectrometer*



Data Management and Dissemination


- Data storage on an off-site project server
- Data shared between the WTPs through a password protected website
- Data visualization using NexSens iChart software



The image shows a screenshot of a web login interface for WQData.com. At the top left is a small lighthouse icon. The text 'WQData.com' is prominently displayed in blue, with the tagline 'A Web Interface for Real-Time Environmental Data' in smaller black text below it. A blue horizontal bar contains the word 'LOGIN:' in white. Below this, the labels 'USERNAME:' and 'PASSWORD:' are positioned above two white rectangular input fields. A 'Go >>' button is located below the password field. At the bottom of the form, a small line of text reads: 'ENTER YOUR USERNAME AND PASSWORD TO VIEW YOUR WEB DATA CENTER'.



Data transfer to a public website



St. Clair River

Lake St. Clair Drinking Water Protection Project

Managed by
Environmental Consulting
& Technology, Inc.

[MAP](#)
[DATA](#)
[GRAPH](#)
[STATS](#)
[PANEL](#)
[INFO](#)
[FORUM](#)

☐ Port Huron

☒ Temp
 ☒ Sp Cond
 ☒ pH
 ☒ ORP
 ☒ Turbidity
 ☒ Chlorophyll
 ☐ DOSat
 ☐ DO

☐ Marysville

☒ Temp
 ☒ Sp Cond
 ☒ pH
 ☒ ORP
 ☒ Turbidity

[SELECT ALL](#)
[GO](#)

DAY

WEEK

MONTH

YEAR

FROM/TO

10/01/2008

10/01/2008

TABLE

ADMIN LOGIN

POWERED BY NEXSENS TECHNOLOGY

PH **8.31**

ORP **293** mV

Turbidity **3.90** NTU

Chlorophyll **0.5** ug/L

New Baltimore at 10/01/08 3:30PM

Temp **71.49** F

Sp Cond **228** uS/cm

pH **7.95**

ORP **274** mV

Turbidity **1.30** NTU

Chlorophyll **-0.3** ug/L

Mt Clemens at 10/01/08 3:30PM

Temp **74.59** F

Sp Cond **457** uS/cm

pH **8.09**

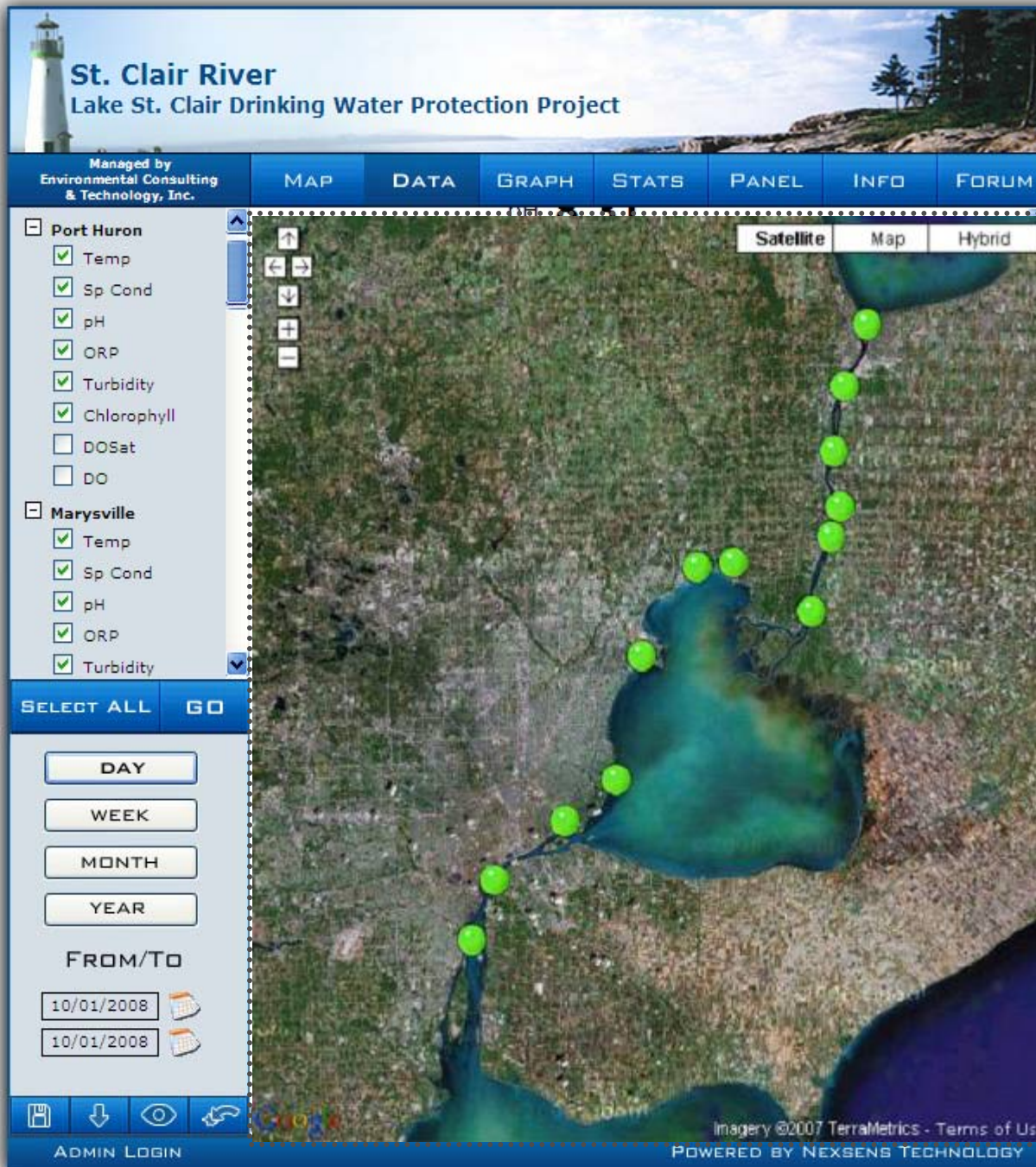
ORP **207** mV

Turbidity **-0.50** NTU

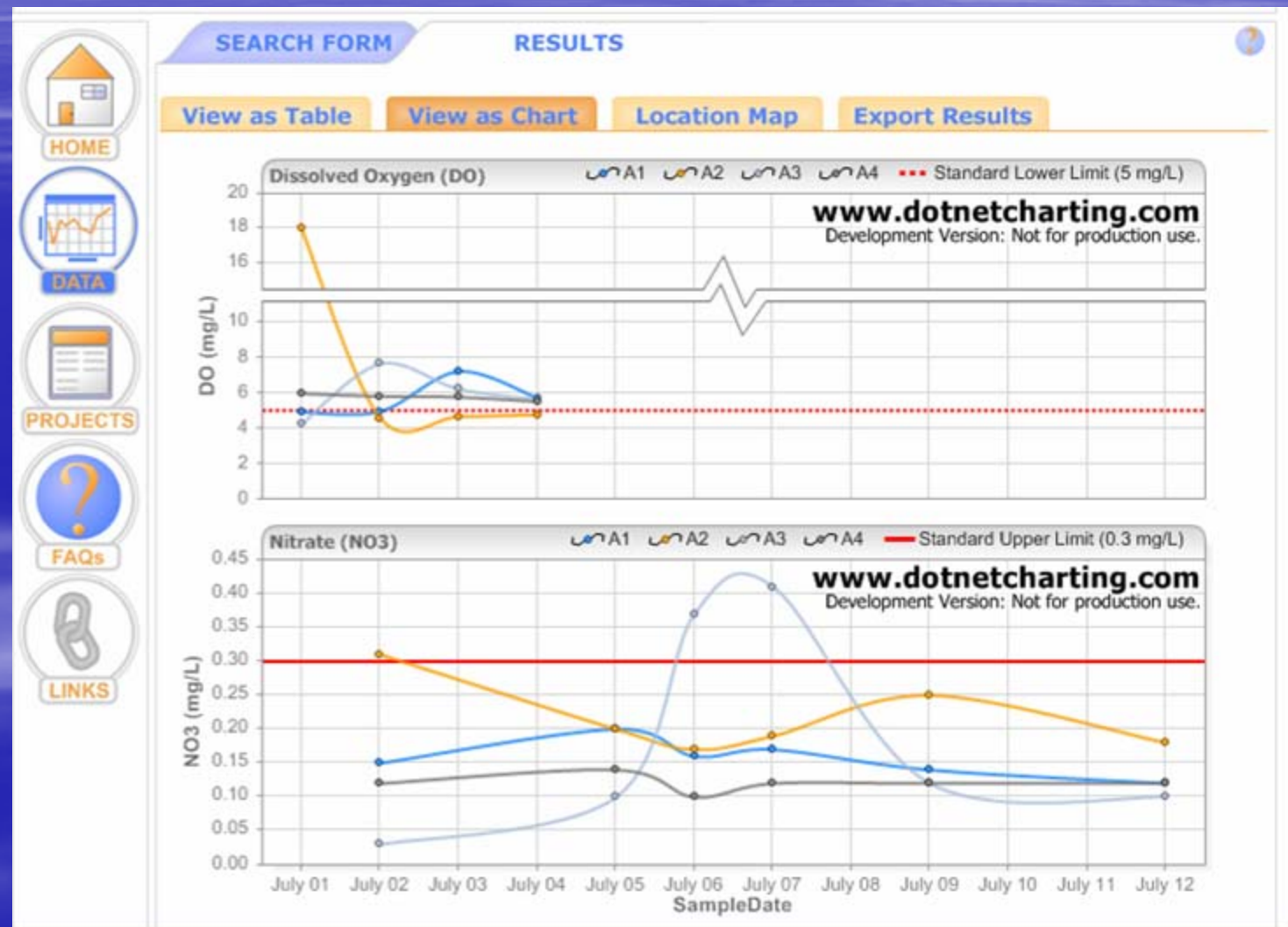
Chlorophyll **0.9** ug/L

TOC **5.841** mg/L

o-Xylene **-0.001** ppb



Public water quality website operated by Macomb County Health Department Regional Water Quality Information Management System



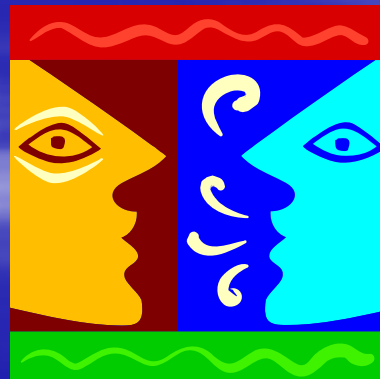
Microtox

Biosensor based toxicity assessment



Future Funding and Governance?

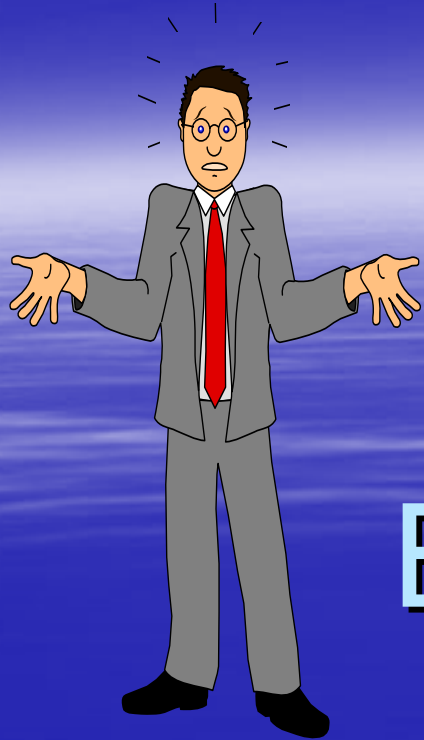
- Funding Plan due in early summer 2009
- Presented to Communities for approval
(The Hard Part!)





Summary

- Over 4 million people use the Huron to Erie Corridor for their drinking water
- RTM project has varied uses and tasks
- A major cost benefit may be confirmation that no threat exists at all!



Questions?

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